SCHOOL AND SOCIETY

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A NATIONAL UNIVERSITY[1]

THE gradual piling up of organized influences in support of the proposal for a national university is one of the striking things in our American educational history, and proves that there is something behind the movement more powerful than the sentiment growing out of George Washington's bequest. The very persistence of the movement, after a century of intermittent discussion without any progress, would seem of itself to show that there was not only a great need felt for such an institution, but that there were forces behind it which must ultimately bring it to life. My purpose, therefore, is to show that the proposal arises naturally out of the needs of the educational and scientific institutions of the country, especially of the great state universities and agricultural and mechanical colleges, and of the scientific bureaus and other departments of the government in Washington. My thesis, then, is that the national university is necessary for the completion of these institutions, state and national, and will therefore be rather an evolution than a creation, a development out of existing institutions and not an entirely new establishment. In this broad sense, the national university already exists in the great libraries, museums and scientific bureaus carried on by the nation at the capital, and in the great surveys covering the country, conducted under the auspices of the national government.

[1] Statement of Charles Wm. Dabney, president of the University of Cincinnati, Cincinnati, Ohio, before the Committee on Education of the House of Representatives, 63d Congress, February 27, 1914.

Undoubtedly George Washington had in mind the establishment at the capital of a national university of the type that existed in his day at the capitals of the various continental countries; that is, an institution for general higher and professional education. The development in this country of great private institutions, and especially of the state universities, the characteristic institutions of America, has entirely removed the necessity for this type of school in Washington. Failure to recognize this has caused great confusion in the past and is chiefly responsible for the failure of the earlier advocates of the national university to impress their views upon the educational authorities of the country. That an ordinary university, no matter how great and rich it might be, was not needed at Washington has been clearly recognized by all who have discussed the matter in the last twenty years. During this time, the demand for a great graduate institution which will correlate the scientific bureaus and departments and be the head of the universities of the country—an institution, in short, which will be a university for university-trained men, rather than a popular institution—has become steadily greater. The chief demand has been for an agency which will open up to the students of the country the vast stores of material for study found in the national capital. In order to do this, it has been apparent to all that some organization of the university type is necessary. Every proposal made in recent years has been based on this opinion—that tremendous resources for study and research are going to waste in Washington,

and that some organization should be provided to make them accessible to advanced students of history, government, economics and natural science and its applications.

In recent years, the opinion has also been growing that the government itself should promote such study as a means of preparing men for its own service and of developing a scientific knowledge and public opinion which would aid congress, the state legislatures and the municipalities in giving the people better government. It is evident, also, that the ordinary methods of the civil service are not meeting the demands of the government, states and cities for scientific experts, and the work of some of the great state universities, like the University of Wisconsin, in cooperating with and serving their state legislatures and administering their state commissions and bureaus, has led many to believe that the national university would be of similar service to our national government. It is my purpose, therefore, to try to trace the development of what I believe to be the true conception of the national university.

The first definite formulation of this conception of which we have any record was in a resolution of congress approved April 12, 1892, which, after referring to the large collections in Washington and the duty of the government to "promote the work of education by attracting students to avail themselves of the advantages aforesaid under the direction of competent instructors," declared that "the facilities for research and illustration in the following and other governmental collections in the city of Washington for the promotion of knowledge shall be accessible under proper rules to the scientific investigators and to students of any institution of higher education now incorporated or hereafter to be incorporated in the District of Columbia." The limitation to institutions in the District of Columbia was removed by an act of March 3, 1901, so that these provisions were extended "to duly qualified individual students and graduates of institutions of learning in the several states and territories, as well as in the District of Columbia."

This resolution accomplished little, for these collections are scattered all over Washington, and are in the care of officials not primarily interested in students. Some investigators were able to hunt up the material they wanted, but their general failure to do so caused next a movement to form a central bureau, or clearing house, to which students could go for information with regard to the opportunities for study and the openings for scientific work in Washington. In the absence of information describing these facilities it had proved almost futile for students to come here on their own account and seek what they wanted. The ordinary student was lost in the mazes of the government bureaucracy. As President Hadley said some years later, "the student who comes to Washington to-day to get his scientific training in the government departments comes under his own impulse and at his own risk."

The Association of Agricultural Colleges and Experiment Stations renewed the agitation, therefore, by appointing at the meeting in July, 1897, a committee to "investigate, consider and, if practicable, devise a plan whereby graduate students may have access to and use of the Congressional Library and the collections in the Smithsonian Institution and the scientific bureaus of the various departments at Washington . . .; the composition and organization of such a staff as may be necessary to properly coordinate and direct such work and offer an outline of such legislation as may be necessary to effect the general purposes of this resolution."

In response to this resolution, the members of the committee reported that they thought the time was ripe for action, that

some existing agency should be found to undertake such work of organization, coordination, and direction, and that they had therefore turned to the Smithsonian Institution as the one best fitted for the purpose.[2]

The matter was duly presented to the Board of Regents of the Smithsonian Institution at its meeting on January 24, 1900, but on the advice of the secretary, the institution declined to take any action, and laid the matter over until the following year. When the board met in 1901, the Carnegie Institution had been founded, and, so far as I have read, the matter is not mentioned again in the proceedings of the Smithsonian Institution.

The Washington Academy of Sciences next took up the matter in connection with the Washington Memorial Association. The object of this academy was to federate the various scientific societies in the national capital for the promotion of science in the broadest sense. The Washington Memorial Association was a society of ladies and gentlemen who had undertaken to erect a building in the capital as a memorial to Washington, and to provide a home for a bureau to give information and act as a clearing house for students and government officials. These two organizations agreed that, although American universities had so developed since Washington's time that they fulfilled many of the objects of the national university as he saw them, there was still great need of a bureau in the capital, which would facilitate the use of the scientific and other resources of the government for purposes of investigation, and which would cooperate with the colleges in showing the professors and students where they could find these resources.

As a means of accomplishing these objects, the associations proposed the establishment of an institution in Washington, separate from the government, which would, through a small corps of officers, and, perhaps, a small faculty of instructors, bring together the students, the material and the scientific men in the national capital. A committee of the academy was appointed to cooperate with the committees of the Association of Agricultural Colleges and Experiment Stations and the National Education Association, in the effort to create a new organization to accomplish their purposes. This committee drafted and secured the passage of the act approved by congress on March 3, 1901, extending the privileges of the Washington departments to all students of the country, and also drafted a plan of organization, which was, in brief, as follows:

A private foundation, independent of government support or control, was proposed, which was to facilitate the use of the scientific and other resources of the government for research, and cooperate with universities, colleges and individuals in securing for properly qualified persons opportunities for advanced study and research. The policy, control and management of the institution were to be vested in a board of fifteen trustees, and in addition there was to be an advisory board composed of the heads of the executive departments, bureaus, etc. The articles of incorporation, which were issued under the laws of the District of Columbia on May 16, 1901, established the Washington Memorial Institution with the object of creating a memorial to George Washington, and of promoting science and literature. Moreover, it was the aim of these articles to provide opportunities for advanced study, and to facilitate the utilization of the resources of the government for purposes of research and higher education. Fifteen trustees were elected, including a regent of the Smithsonian Institution, a number of uni-

[2] P. 58, Bulletin 65, Dept. of Agric. Proceedings Twelfth Annual Convention, 1898.

versity presidents, and heads of Washington bureaus. President Daniel C. Gilman was elected director, with the duty of making all "arrangements for cooperation between the institution, on the one hand, and the government, universities, learned societies and individuals, on the other." Investigations were made as to facilities and available instructors, and the expense of providing a limited number of lecturers, who were to be selected from the government itself, and whose services were to be voluntary.

In a report made to the board at this time, the head of one government survey stated:

> So far as America is concerned, it is safe to say that at Washington the facilities for higher education in the sciences are unequaled. No other city in the Union has so large a corps of eminent men engaged in original research in the fields of geology, geography, anthropology, zoology, botany, chemistry and astronomy.

The committee venture to add, among other subjects, meteorology, political and social science, and kindred branches of study.

> Most of these men are employed and paid by the government, so that their services in lecturing and superintending laboratory work could be held at a trifling expense. All that is needed is organization, a home and a small fund. Incredible as it seems, an excellent course in science, comprising 350 lectures and 140 evenings of laboratory work by 40 different specialists, can be given in this city for the insignificant sum of $5,000—the salary of a single professor in our leading universities. The biological part of the course would be particularly strong, the plans having progressed so far as that a course of 150 lectures and 140 evenings of laboratory work has been arranged for in zoology and botany. In these branches, special emphasis could be given to the systematic and economic sides, neglected in most of our universities. The instruction would be given by at least twenty specialists, each proficient in some line of biological research. Courses of equal merit can be arranged in the courses above mentioned. As a recent writer has said, the genius and training are already here, most of the facilities are already provided, and little remains to be done save the coordination of existing instrumentalities. It is of the utmost importance that the early steps be guided by wisdom and experience.

With plans of this kind in mind, the committee proposed to raise for this initial private institution an endowment to provide $50,000 a year to pay the expenses of such a central bureau and the salaries of a limited number of instructors. To raise this fund, the Washington institution appointed a committee to confer with various gentlemen who were supposed to be interested in the advancement of science in Washington.[3] Among those approached for funds was Mr. Andrew Carnegie, who took the matter under consideration. The plan presented to Mr. Carnegie was practically that outlined above. About this time, however, a powerful opposition to the national university plan developed, chiefly among the privately endowed institutions in the eastern section of the country. When it became known to these colleges that Mr. Andrew Carnegie had under consideration a proposition to finance an institution in Washington for teaching and research, they exerted their influence to induce him to leave out all teaching features, and to make it, not a university open to students, but an institution for special investigations. They succeeded, and the result was the Carnegie Institution, the establishment of which Mr. Carnegie announced in his letter to the secretary of the Smithsonian Institution, dated December 27, 1901. Thus there seems to be no question that the plans and arguments laid before Mr. Carnegie for the Washington institution first interested him in this general subject, for it was the gentlemen of this committee who presented the cause to him. The first board was made up of some of these same gentlemen, and the first president of the Carnegie Institu-

[3] Bulletin 65, Department of Agriculture, *cit. super.*

tion was Dr. Daniel C. Gilman, who had been chosen as the director of the Washington institution. In this sense, therefore, the Carnegie Institution was a substitute for the institution proposed by the Washington Academy of Sciences and the Washington Memorial Association.

The Carnegie Institution represents, of course, a great idea, and no one can regret that those little proposals resulted in this tremendous result. Looking back at it, I can see now that it was well. From my point of view, I would say that it was providential that the small private institution failed and that the great Carnegie Institution for Research was formed. The latter does not, however, meet the need of a national university. It is endowed for special research work, and it can, after all, endow only a few lines of research. The Carnegie Institution, as far as it goes, is, to my mind, another asset for the national university and another reason for its establishment. It has already done a vast deal for the advancement of scientific research, and we are sure it will always be an honor to our country and a benefit to the whole world, but it does not meet the needs of the situation. The Carnegie Institution is a foundation for the promotion of special scientific research by private individuals, societies or institutions. It has no relation to the national government or its bureaus, and can only in a very limited way serve the needs of the scholars of the country. It is not open to all students. It is a private institution in this sense, and can not cooperate as freely with the government bureaus as will a national institution. The need of a national university, therefore, remains just as urgent as before its establishment.

Another influence to be considered in shaping the institution of the future must now be mentioned. This is the demand of the government for scientific workers, and the failure of the ordinary civil service to provide them. The civil service furnishes a very good method for securing clerks, statisticians or ordinary officials for the government service, but it does not furnish adequate means for securing scientific experts. Therefore, the almost uniform policy in the government laboratories has been to train these men on the spot, *i. e.*, in the surveys or laboratories. The Geological Survey, the Forestry Service, the Biological Survey and the various scientific laboratories have followed this plan for years. One thing needed was some method of bringing the young men who desired to enter upon such careers into correspondence with the directors of the laboratories. A means to this end has always been lacking, and is still lacking in a great measure, though something has been done in recent years to fill the gap.

Let me give you an illustration from my experience. When I was in the Department of Agriculture I was walking one day through a museum, and stopped before a case of specimens where an old one-armed gentleman, working away as best he could with his single hand, was cleaning the specimens. I said, "My man, how do you happen to be doing this?" He replied, "I do not know; I have been doing it for a number of years." "What is your position?" I asked. "I am a messenger in the department," he said. "What is your salary?" "Seventy-five dollars." "Would you not rather do something else?" He answered, "Yes; I am an old man and I would rather do the regular work of a messenger." I thought it over, and as I remembered a young man in one of the colleges who was studying that very line, it occurred to me I could help them both. So I got the old man a job where he could be out of doors, and the young college gradu-

ate was put to work on the specimens. I did not follow the old man, but the young man obtained the opportunity he needed for scientific research, with the result that he afterwards became a professor in an agricultural college in the country, and is now head of an important division in the Department of Agriculture.

You see, the young man got the one chance he was seeking for his development. Now, gentlemen, there are hundreds of such places that should be filled by such young men. They are now being given through the civil service to people who too often have no particular interest in doing that particular kind of work, and, therefore, do it mechanically. There are thousands of opportunities in the general offices of the government for students to do ordinary work which is mechanical for other people, but which they would do with a scientific interest because it gives them an opportunity for study.

For example, in the report of the Secretary of Agriculture for 1898, we find this official recognition of the practise of workers in the departments:

> The scientific divisions of the Department of Agriculture can, to some extent, provide post-graduate facilities. We can direct the studies of a few bright young people in each division, and when the department requires help, as it often does, these young scientists will be available. They should be graduates of agricultural colleges and come to the department through a system of examination that will bring the best and be fair to all. The opening of our laboratories for post-graduate work will provide an eligible list from which to fill vacancies as they occur, supply temporary agents, and be a source from which state institutions might get assistants in scientific lines.[4]

The secretary goes on to say that to meet this situation he has inaugurated a new class called "student assistants." The Forestry Service carried on for a number of years a regular school for the training of assistants. The rank of "forest student" was created, and the young man was prepared both in the laboratory and in the field for appointment to full service.

The Geological Survey has followed the same plan with good success. As early as June 28, 1901, Charles D. Walcott, who was at that time director of the Survey, wrote in *Science:*

> In the Geological Survey graduate students, being the best men available for temporary field assistants, were given preference, but as the development of the work progressed, including other scientific bureaus of the government, it became impossible to find men qualified for the permanent positions opened to them. Graduate students were obtainable, but they were without practical training. Civil Service Commission was called on, but has had no eligibles on its lists. The only way out of the difficulty seemed to be for the heads of government scientific bureaus to select bright, well-educated men and train them. This they have been doing for several years. The Geological Survey cooperates with such institutions of learning as are willing to give the advance instruction necessary to fit students to engage in the special lines of investigation carried on by it. This cooperation consists mainly in the employment of graduate students and instructors. A high standard is maintained by the character of the examinations held.

And the director goes on to give a list of colleges, including Harvard, Johns Hopkins, University of Chicago, Yale, Cornell, Wisconsin, Stanford, Amherst and others, all of which supplied two or more assistants and some twenty other institutions, each of which supplied a single assistant to this one survey in one year. He says that 50 per cent. become permanent members of the survey, while the others return to the states to do valuable work there.

There is a regular medical school in connection with the library and museum of the Surgeon General's Office. This school is open only to the young men who have been admitted to the government service, though medical students at Washington

[4] Yearbook, Department of Agriculture, 1898, pp. 18, 19.

colleges are permitted to use the library. The Bureau of Standards also carries on regular classes. The report says:

> The development of researches in this bureau must necessarily go hand in hand with the development of men to make the researches; hence, the educational side of this bureau is much more fully developed and much more successful than that of most others.

Other bureaus and laboratories in which men are being trained, or to which they may be admitted, are enumerated in the report as follows: Public Health Service, Bureau of Fisheries, Naval Observatory, Patent Office, Bureau of Education, Bureau of Manufactures, Coast Survey, Bureau of Statistics and the War Records Offices of both the Navy and War Departments. The bureaus of the Department of Agriculture, Geological Survey, etc., have been mentioned above. In all, there are some 40 distinct institutions, bureaus, libraries or laboratories that have already taken students for research or training, or would be glad to do so.

The history of the department shows that this is the way in which many of the distinguished men in the government service have been trained. Many young men who have had this opportunity for research work have gone out into universities and technical institutions of the country. In fact, for a long time it was the only way in which certain classes of experts, such as topographical engineers and geologists, could be trained. There were no other places in the country where they could get this special education. Until the agricultural and mechanical colleges were established the government service offered almost the only source of training in agricultural chemistry, economic entomology, horticultural science, and in the sciences connected with the animal industry. Although many of the universities taught the theory of geology and other sciences, they offered few, if any, opportunities for practical training.

The colleges were for a long time institutions apart from real life and the real practise of the sciences; so that the government or state services gave young men their only opportunities for this training. The same was also true, to a large degree, of economics and political science. There were very few chairs in these subjects in our country until after the Civil War. There was only one chair in political science in the southern states before 1880, and that was founded by Francis Lieber, a German scholar at the State College of South Carolina. Government offices presented the only opportunity for study in these lines also. Illustrations of eminent men who have been trained in the government service will occur to all of you. It may not be improper to mention two men of our day who are distinguished for their service to their country in different departments. The present counsellor for the State Department, perhaps the greatest authority on international law and kindred subjects in this country, commenced his career as a law clerk in that department. He has held the highest professorship in the country in this branch of study, and has been called back to Washington repeatedly in the service of his country. The present secretary of the Smithsonian Institution, who holds a position which we rightly regard as the deanship of the scientific profession in this country, commenced his career as an assistant geologist, first on the New York State Survey, and soon afterwards on the United States Geological Survey, where he worked through all of the different grades up to the directorship. He was the man who perfected the plans for the geological survey of this country. I might give you the names of hundreds of others who have been trained by this method for the service

of science and of their country. Still, unquestionably, the greatest difficulty that the government encounters is that of getting men to do its work. I can assure you that the same is true with regard to the work of the universities and the scientific work of the states. It is men with training, not mere learning, that are everywhere in demand. The burning question to-day is how to get men who not only know things, but who know how to do things. The government service offers the best opportunities in this country for the training of men of this type. Why, then, should it not be used in a more systematic and liberal manner for the education of the young men of the country? I contend that it should be, and that to this end there should be an institution in Washington which would introduce these young men into the government service, and educate them on the scientific side while they are getting their practical training. The question then arises: How shall this be done?

I believe that any plan which would admit graduates of the colleges and universities to the government service while they are getting their professional training, is bound to produce good results. The plans already in use in the departments referred to are good methods, and the system of admitting scientific aids as pursued for a time in the Department of Agriculture was practicable, but, judging from our experience at the University of Cincinnati, I believe with my colleague, Dean Schneider, who recently appeared before you, that the cooperative plan would be still more successful.

I come now to the application of the cooperative plan of training experts.

I read before this committee Dean Schneider's excellent speech which explained the general plan of procedure.

Mr. Towner: Dean Schneider only told us of his views on the general subject of vocational education. He made no particular application of it to the matter before the committee. I should be glad if you would go into that.

Dr. Dabney: I can begin with this plan for scientific assistants in the Department of Agriculture. The method at that time was to seek out those young men in the colleges who wanted to pursue work in agronomy, in agricultural chemistry, on soils, in economic biology or entomology, etc. These students were to be given minor positions, say from $75 a month up, and were to be put in the government service under professors who would be their guides and teachers while they studied in the institution in Washington.

Mr. Towner: Assuming that the position sought was a place in the Biological Survey of the Agricultural Department, and the applicant had a diploma from the school of biology of an accredited university; would you say that was sufficient?

Dr. Dabney: The department might desire a man to do some particular work—say on soils or on crops. Now, you would probably find a good many graduates in biology, but they might not be particularly fitted for that work. The fact that a man is a graduate in biology is not enough. No; I should not like to commit myself to the broad proposition that the graduate ought to be given a place just because he is a graduate. I think that the head of the bureau ought to be able to select the men for the various branches of the work in his bureau. There are so many kinds of work going on that there would be opportunities for many of the biological graduates.

What is needed from this point of view is an institution to act as a clearing house between the colleges and the government laboratories.

With an institution in Washington of the

type of the national university proposed, or at least of the modest university which we tried to start here in the late nineties, hundreds of young graduates could be brought together who would be glad to serve the government on small salaries for the sake of the training they would receive. Our experience in Cincinnati indicates that the government would thus get the highest class of scientific service at the smallest expense. But this should not be the first consideration; the chief object should be to open up the government departments for the purpose of educating and training the future servants of the country. My colleague has, however, described this co-operative plan to you fully, and I need only say that I heartily indorse all of his opinions, and sincerely believe that the plan can be successfully applied to the national university. There is no reason in the world why this class of students should not do the routine technical work of the laboratories, libraries, museums, statistical offices, and other bureaus of the government, and be advanced from one class of work to another as they get the necessary knowledge and experience.

Another great service which a national university might render the government would be the correlation of the different scientific departments. I need not tell you that there is an immense amount of duplicated work among these departments, which results in a great waste of time and money. Of course, this is not designed; it arises from the way in which the government bureaus have grown up independently of each other.

I have had a little experience along that line. Members of congress know how a new bureau in the government is started. Because of their somewhat mysterious character, it used to be easier to establish new scientific laboratories than any other bureaus in the government. The new bureau started an appropriation bill. A bright young man connected with a scientific laboratory thinks of a line of investigation that will be of some value to the government, and he begins to work for it. In the old days, he did not even have the permission of the secretary, but he or his friends came before a committee and tried to show why a certain new bureau was needed. To-day he would need to get the permission of his chief and the secretary, but that is still, perhaps, not very hard to do. You gentlemen know how these things come up. A new scheme is presented, and a little appropriation, perhaps only $5,000 or $10,000, is requested, and it gets into the appropriation bill. I know of a bureau in one of the departments which started with $5,000, and now, after 15 years, it gets $400,000. It is not necessary to say whether it is a good line of work or not. That bureau now has many different laboratories, which duplicate, to a certain extent, the work in other bureaus. I will not say that they are unnecessary, but it is too easy to duplicate these laboratories. There should be some central authority to co-ordinate and correlate them.

The different bureaus are doubtless trying faithfully to prevent this waste within their own fields, but so far no agent has been found to eliminate the duplication of the work done in the different departments and bureaus. Congress has from time to time made honest efforts to establish better correlation, but in the nature of things committees or commissions can not do it; it is a piece of work that requires time, patience and scientific ability. To take a single illustration: The last time I made a count (in 1901), the government had seven different chemical laboratories in Washington, and I suspect that a number of others have been established in the mean-

time. Now, chemistry is a tool used by the government chiefly in its scientific and economic work; it is just one method of testing and measuring things. The principles and methods by which this testing and measuring are done are, for the most part, the same in all departments. Why, therefore, should there not be in Washington one great chemical laboratory, like a great factory, in which all the chemists here occupied might be given laboratories, and still remain under the various departments? The majority of them are carrying on their work at the present time in rented buildings inferior to any of those in the universities, and under conditions that are not especially favorable or stimulating. A central plant, in which all the chemists would be brought together, would not only help to eliminate duplication and promote economy, but would, by encouraging personal contact and discussion, greatly improve the chemists and the work. The same is true of the biological, medical and other departments of the government.

Another consideration in advocating a national university of this type is the duty of utilizing these vast stores of scientific material in Washington as completely as possible for the advancement of knowledge. It is a well-known fact that the demands of the government for immediate economic results compel its scientific staff to devote its energies almost exclusively to the study of those problems which have practical ends. The rich materials for the advancement of pure science are thus, in a large measure, necessarily neglected. If in each of the government scientific bureaus there were a number of students working on their material with reference to the advancement of pure science, the world would certainly get a much larger output of results. The utilization of material by a limited number of students of this character need not interfere at all with its use for economic results. On the other hand, a complete scientific study of the material would undoubtedly greatly promote the efficiency of the departments in reaching the immediate results demanded by the government. The presence and work of advanced students would undoubtedly greatly improve the work of the government scientific staff itself.

It is conceded by all educational authorities that the investigator who is doing a limited amount of teaching does the best work for the advancement of science. Teaching makes it necessary for a man to have a broad view of his subject, and the presence of young and earnest minds is always very stimulating to the investigator. The man who spends all of his time in particular research too often loses his connection with everything else, with the result that he becomes buried in one subject. The greatest investigators have always been great teachers. It is fully believed, therefore, that a reasonable amount of teaching would not injure, but, on the contrary, would improve the scientific staff of the government at Washington.

There is another consideration, however, which appears to me to be more important than any of those mentioned so far, and that is the influence that the faculty and students of the national university would have upon the entire government—congress and the executive departments, as well as these scientific bureaus and surveys. We have in mind, of course, the new type of a university, and not the ancient cloistered institution. The time was when universities considered themselves as things apart from real life, but in these days the university is making itself more and more the servant of the people. Some years ago we used to hear a good deal about "university extension"; that is, about the plans of extending to the ordinary people the instruc-

tion given by the university. In these days the university seeks to live among the people and work with them all the time. We are familiar now with the splendid work being done by the University of Wisconsin. You know the extent to which the state of Wisconsin uses the members of its faculty on its various commissions; you are also familiar with the remarkable work of the legislative reference bureau and of the Industrial Commission of Wisconsin. Through such measures, the university has become a part of the living organism that we call the state of Wisconsin, the brain commanding every part of the body politic. As a result, we all recognize Wisconsin as one of the most progressive of our states, the one to which we all look for new ideas in government. We may not approve of all the different political and economic experiments which are being carried out there, but it certainly is most important that these experiments are being made in such a scientific and efficient way under the direction of the University of Wisconsin.

My thought is, therefore, that the national university at Washington would serve the national government in the same way that the University of Wisconsin serves the state of Wisconsin—it would furnish a great board of experts here at the national capital to study, counsel and give advice about all our great scientific, economic, industrial, educational and social problems. It has been proposed, for example, that there should be a national legislative reference bureau. The national university would itself be such a bureau.

At this point, let me refer to that old argument against the national university—that the politicians would be certain to interfere with it. Any one who is familiar with the work of these new state universities is bound to be amused at this. In the old days, while the universities were being established, and before they asserted themselves, they were more or less interfered with by the politicians. That was a kind of disease that had its place in the childhood of our institutions. But since the universities have been established and have filled the legislatures with their graduates, the process works the other way. Instead of the politicians running the universities, the universities of the country are more and more directing the economic and governmental work done by the legislators. Let me illustrate by the case of a state university. I went once to see that grand old man, the greatest president of any state university, Dr. James B. Angell, and he told me about some legislation he was advocating for a state system of education. After he had explained the matter, which elicited my keen interest, I said, "Doctor, your legislature is in session. I suppose you will go to Lansing and see about it." He replied, "No; I shall not. I have many of my boys there. All I need to do is to tell them what ought be done, and they will do it." President Angell was, of course, supreme in Michigan; but this shows what an influence a state university can exert.

A national university in Washington, officered by the wisest and best scholars in this country, would, in my opinion, exert far more influence upon congress than congress would exert upon it. In fact, it is ridiculous to charge that any considerable number of members of congress can be found who would be so silly as to undertake to influence the thinking, teaching and counseling of men competent to fill the chairs and work in the laboratories of a national university. In my opinion, you would find that a fine spirit of cooperation would soon grow up, and that members of congress would constantly appeal to the faculty of the university to advise and help them in their work for the country.

In conclusion, let me recall another personal illustration with which you may be partly familiar. Some thirty years ago, a young graduate student in a neighboring university came here to Washington to study. Every week for a year or more while he was in the university, that young man came here to study the system of government of his country. He passed through these halls, he visited the committees, and sat long hours in the galleries of the House and Senate. He studied in the libraries and in the departments, and so collected the material for the dissertation on which he was granted the doctor's degree. Last year, that young man stood at the clerk's desk in the House of Representatives, and, for the first time since Washington, delivered a presidential message to congress. Gentlemen, do you not think that it was worth while to give that young man the opportunity to study in Washington? Woodrow Wilson received his training in that way, and many other young men could get a similar training if they had the same opportunities. President Wilson wrote his book on "Congressional Government" first as a thesis in preparation for his college examination. You know what a valuable work it has been. Do you not believe that if 100 young men had been given the same opportunity that he had, we would now have in the departments in Washington and in the states more polished scholars like Woodrow Wilson? If the departments could be opened up to such young men, we should soon have thousands here studying the problems of this country.

Mr. Platt: Is it not true that the departments are open to such men as Woodrow Wilson to-day?

Dr. Dabney: Yes, to a very limited extent; but how many young men know how to find these things? Wilson was the pioneer. Perhaps other young men lacked the initiative, the energy and judgment, but I believe Wilson owed something to the direction of the great professors at Baltimore. His example shows what a young scholar may do for science here. You know that his book on "Congressional Government" was the first publication we had giving the method of the work of congress. Is it not remarkable that no man wrote such a book until 1883, and that it was written then by a college student? You recall, also, that an Englishman had to come to Washington to write the first complete text-book on the "American Commonwealth"—James Bryce, now Viscount Bryce, until recently ambassador of Great Britain to our country. This joint illustration certainly shows clearly that we need scholars here to work up these problems and make these books for us.

Mr. Rupley: Is it not probable that this may bring up an unsettled condition in our affairs, social and otherwise?

Dr. Dabney: No; I do not think any such conditions would result from the enlargement of our plans for higher education —the establishment of a national university. I believe the more wisdom and training men have, the better and truer citizens they are. I think a violent change is much more liable to occur in a country where the educated people are few and the many are left uneducated. This is, of course, a truism.

Mr. Platt: Doctor, I asked you a question as to whether or not the departments are now open to real research students? Would a national university, composed exclusively of an examining board, answer the purposes and let the men do their research work anywhere?

Dr. Dabney: No; I think study and investigation should be provided for. The University of London and the other universities of England are giving up that system and are becoming teaching universities. In

that connection I refer you to the report of the Royal Commission on the London University in the Bluebook. The London University was for a long time merely an examining university. It is now to be a complete university, with teaching departments fully developed.

We need trained civil servants for every part of the government work. We must have trained scientific men and an educated civil service in every department. What the nation needs above all is trained legislators. In this country the vast majority of our legislators and public servants are amateurs. It is not so to such an extent in England or on the Continent. Look at Germany, with its most magnificent corps of trained public servants. I think the proposed national university would help greatly to produce such a class of public servants for our country. I thank you.

THE ENFORCEMENT OF COMPULSORY ATTENDANCE LAWS

THE beginnings of compulsory education; its logical foundations and the course by which one essential point after another has been secured in the laws of the different states are all germane to the historical consideration of our topic, but we may not stop to-day to discuss them. While there may still be individualists who will argue against the social right to interfere with the child's liberty or the parent's discretion as to his attending school, and possibly a few people who believe such laws unnecessary, I shall take it for granted that the value of such statutes is conceded. The present situation as to compulsory education in the United States is practically the same as the situation on other items of educational theory and procedure. Legally, we have no national system of education, but as many different plans as there are states. Practically there has been notable progress in recent years toward unity of plan and a common method of procedure among the different states. From the point of view of desirable conditions, compulsory education has not yet gone very far in the United States. If we are to consider it historically, however, with an eye to the gains in recent decades, the advances are encouraging.

Prior to 1870 but two states had enactments of this kind on their statute books. Congress had also acted for the District of Columbia. The first effective law, which gathered up some vagrant provisions as to truancy and regular attendance previously enacted, was passed in Massachusetts in 1852. Vermont passed its first law in 1867, while the District of Columbia enactment was in 1864. In the next decade twelve states passed similar laws. In the twenty years between 1880 and 1900, fifteen more were added to the list and ten others made similar provisions during the first decade of this century. Thus the list of states at present without any provision for compulsory education is brought down to a half dozen southern states, with three or four in the same section whose enactments are not state-wide, but drawn to meet special local conditions. The vital provisions as to length of the compulsory term, the maximum age of pupils coming under the law, and the penalties for enforcement differ amazingly. Apparently the best laws and the best enforcement are found at present in the New England states, New York and a few of the North Central states. According to the 1910 census (quoted in W. S. Deffenbaugh's article on "Compulsory School Attendance" in a recent bulletin of the Bureau of Education) only eight of the states have secured the school attendance of 90 per cent. of the children between six and fourteen years of age. Four of these are in New England, the others being Iowa, Nebraska, Michigan and

New York. Ohio has advanced legislation on compulsory education and child labor passed in 1913 and the Wisconsin law for continuation schools in industrial training has undoubtedly done much to help the situation in that state.

But however much we may say as to progress in the last two or three decades, statistical comparison of the proportion of the children in school and of the facts of illiteracy, which clearly bear a direct relation to compulsory school attendance, shows that both the laws and their enforcement are in actual terms of the best procedure, incomplete and ragged. In the different states, the compulsory age limit ranges from twelve in three states to sixteen years of age, which is the accepted limit in fifteen states. Idaho is the only state going above the limit of sixteen and has named eighteen years, but evidently conditions of enforcement, probably because of scattered population, are uncertain; as the percentage of children under fourteen who are enrolled in school is 82.1. The period of required attendance varies from twelve weeks per year—six of which must be consecutive—in one of the southern states, to the full year—the legal requirement in twenty-five states. But here, again, legal enforcement as to the complete school year varies so that the Frenchman's dictum on a general statement is correct: "No general statement is true, not even this one." Further, the causes of exemption are so varied that the percentage of efficiency of enforcement up to the age of fourteen shows a descending scale from 92.9 in Massachusetts to 54.6 in Louisiana. It should be said, however, that the Louisiana statistics are really prior to the adoption of their compulsory law in 1910. Therefore, in a general discussion of the enforcement of compulsory education laws, it is necessary to assume a law with strong provisions and sufficient penalties, such as the Ohio law of 1913 above mentioned, the Michigan law, or the Massachusetts law.

Given such provisions on the statute books, what are the essentials that must be secured in order to gain a reasonably satisfactory enforcement? The point that seems to me of first importance is one on which I have found it difficult to secure clear data. The provisions are as varied as the different laws and in most of the states much is left to local initiative. I refer to the method of enrollment and registration by which the facts as to the number of children of school age are ascertained. Here the German habit and example of thoroughness and its results in the matter of compulsory education are certainly suggestive even if we can not exactly follow them. Their method of careful and complete registration of all families and the prompt recording of families that move has given them probably the closest estimate to be found in any country as to the actual number of school children. With this as a first step, careful legal enforcement of attendance has followed, the curve of illiteracy has steadily fallen until the ratio of 3/100 of one per cent. has been reached. It is further stated in the same pamphlet from the Bureau of Education just quoted, that in Prussia in 1901 out of 5,754,728 children of school age 5,754,180 were in school. Clearly no state in this country could approach that; probably under the present registration systems, no state would know if it had done so.

There are three groups of local conditions which vary so greatly from each other that the consideration of enforcement of compulsory school laws must be on an entirely different basis for each. We have, first, the large cities of the country with massed centers of foreign population, still inert from the American point of view and

usually not only careless of their educational opportunities but hostile to compulsory attendance. We have, second, the smaller cities and larger towns of the country in which this hostility is rather an individual matter and the general attitude makes enforcement comparatively easy, barring distinct local conditions such as are found in the mining towns of Pennsylvania and northern Michigan, for instance. The third group comprises the scattered population of the rural districts where enforcement sometimes presents almost as serious a problem as in the great cities.

But this point of registration is essential for all and can with reasonable care be fairly met in each of these groups. In the first place, all the respectable laws require a school census which forms the basis for such registration; in the second place provisions for making this effective seem easily possible in a locality of any size. I may briefly describe a plan used with some success in a city of moderate size: Care has been taken for several years to check the school census from previous records with such success that this year less than a score of the names presented to the State Department of Education were rejected as in error. Next, a card record of the actual attendance in the public schools has been kept. These two lists have been prepared for pupils of school age; of course there is considerable discrepancy as there are several parochial schools in the town. In the fall, the list of names found on the school census and not in the attendance register has been sent to each of the private and parochial schools which have cooperated in checking the names of those in attendance at such schools. The remainder of the list has been checked by postal-card notice and by visits of the truant officers. A further list of those in attendance in the public schools last year who have not enrolled this year has been checked in the same way and the result shows that the actual number of pupils failing to enroll is very small. The keeping of the two lists has also been quite effective in checking the curious habit among applicants for school permits of aging suddenly at fourteen, whereby they skip a year or two in order to quickly get to work.

The weakness of this list is one that is, I fancy, constant. It does not account, except through volunteer information, for the pupils who come into town during the year. In a small city, neighborhood information will take care of the major fraction of these people. In the country, neighborhood information may perhaps be a little more reluctant in fact, as being more traceable. But some method of providing for a continuous register of this sort must, in my judgment, be found in order to get thorough enforcement of compulsory attendance. I presume that such methods are used in the large cities where there are well-organized attendance departments.

The second point in enforcement is a sufficient number of attendance officers. Even the best of the localities that I know of—and they are situated in states with a high percentage of enforcement—are weak in this regard. I presume, therefore, that the weakness is practically universal. This is natural enough since parents, as a rule, are rather resentful of legal compulsion, and since there is a hazy notion in the public mind that non-attendance is sporadic and individual. The school man looks upon it as a steady factor of interruption. With a little planning, much more can be secured in this line in almost any city. While the truant officers, so-called, must have certain police powers, the separation of the attendance department so far as possible from the police point of view seems necessary. Men and women should be secured as at-

tendance officers, who, in addition to sympathy and tact, have some knowledge of the problems of education and understand the value of school attendance and regularity therein. I have known a few cities in which the principal attendance officer was a teacher in the ungraded school. This has been valuable both to the school and in the enforcement of the law. It has given a wider knowledge of the conditions affecting the truancy and it has added to the force of volunteer officers a number of pupils who knew the haunts of the derelicts. The method can not be fully carried out in a large city but it can be made useful in the smaller city.

In the smaller villages and rural districts, enforcement of the attendance law is apt to be placed, if placed at all, in the hands of a deputy sheriff. Here again, the principle of removing enforcement from police control and connecting it with the positive side of school administration needs emphasis. The failure to send children to school is, of course, disobedience of compulsory laws and the ordinary machinery for checking disobedience lies either in the local police force or in county and state jurisdiction. Division of responsibility, in matters of this sort, is in general to be avoided; but, in spite of all this, conditions of enforcement in school attendance differ so fully from the ordinary conditions of law enforcement that the establishment of separate machinery for this purpose seems justifiable and in fact necessary. First of all, while the actual culprit in question is apt to be the parent, the person who, in childhood phrases, "gets took up" is the small boy and the visit or escort of the police officers is not for him a desirable thing. Secondly, the attention of the sheriff's office is found to center on larger game; infractions of the attendance law are apt to be considered as almost of no practical importance, or, further, in the sense in which "practical" is frequently used, the important practical point is to forget them. Third, the attitude of police and deputy sheriffs towards law infraction tends rapidly to become cynical and cynicism has no value in securing school attendance. Last, and in many ways most important of all, is the fact to be kept constantly in mind that better school attendance must, in the end, be secured by positive rather than negative means. In other words, the only people who can make a good job of it are those who will have some interest and influence not only in catching the boy but in doing something worth while to keep him after he is caught. Some plan for local truant officers under the direction of state inspectors who are assistants in the Department of Education, these people to do the required investigating and prodding where prodding is necessary, reporting to the prosecuting attorney and the sheriff's department only the incorrigible boys, would be a distinct step in advance. It is along this path that the best chance for enforcement lies.

The child labor situation in the United States, with the demands of industry for cheap labor and the incessant cry of some parents for financial returns from their children are usually considered one of the most serious stumbling blocks in the way of enforcement of compulsory attendance. This is still too true, but personally I doubt whether it is often a more serious difficulty than some of the lacks within the school system itself. Unless I thoroughly mistake industrial signs, the demand of organized industry for child labor in the North Central states, at least, is steadily decreasing. Manufacturers are finding not only that it leads nowhere but that its immediate use is expensive rather than economical. Unorganized and unskilled occupations still depend, for much of their low-grade work,

on child labor. Sometime and somehow I believe the school will meet this situation through changes in its curriculum and by a different attitude toward certain lines of labor as training. Meanwhile, the problem of making attendance laws and enactments regarding child labor harmonize for the interest of the children themselves is puzzling. The emphasis of difficulty lies at one point in one state and at another point in another state. Out of the confusion one or two leading facts arise, viz.: the plan of having the registration for school permits and labor permits, so-called, center at the same place—that is, in the educational departments of the schools, is necessary in order to secure even reasonable results in school attendance. Some sort of working agreement at least should also be secured and if necessary provided by law between the department of factory inspection and the attendance department of any system of city schools.

So far we have dealt with the legal and mechanical means needed to secure effective enforcement of the compulsory education. There is:

First: The good law.

Second: The plan of registration which must nowadays include some method of following up, after the card index manner in which business prospects and presidential voters are catalogued.

Third: We need a sufficient force of qualified attendance officers and the qualifications do not inhere usually in deputy sheriffs and policemen.

Lastly: There must be united effort, under the one main purpose of benefiting children, to direct the enforcement of attendance and the child labor laws.

If school men were to stop here, they might fairly be charged with taking motes out of other peoples' eyes without attending to beams in their own. No one, I think, who has kept in touch with the history of public schools in this country or whose work has made him familiar with their growing problems will fail to maintain the proposition that our school system has made wonderful progress in equipment, in method and in realization of its true purposes within recent years. But the need more carefully to weigh present public demands and to make public education in its scope and best attainments literally inclusive of all classes of children and youth is to-day more urgent than ever before. Facing these facts we may as well admit that an essential element in securing maximum attendance is the readjustment of arrangements within the school itself; put in another way the truest solution of enforcing laws for compulsory education is to abolish their necessity. Of course, I admit that until human nature reaches a higher plane, there will be the irreducible minimum of people who must be compelled to become decent citizens. But the intent of democracy is not only to make possible but to arouse individual initiative—self direction, that is, in thought, in action, in service. Educational workers will agree that the best time to start this multiplication of individual initiative is in the earlier days of a child's training and, further, that the public schools will fail of their mission unless they tie themselves so close to the varied interests of life that they will contain something intellectual for every one possessing an intellect and some kind of training for each boy who needs to be trained. Adam's descendants have wandered over most of the earth and are beginning to inhabit the air. So far they have not stumbled upon the Eden which was lost, nor are they likely to until they realize

the educational and moral value of labor, which ever since that day has been looked upon as a kind of punishment.

The school as an institution has hitherto held largely to the doctrine of the necessity and blessedness of mental work. Sometime it will accept the cognate doctrine of the need of physical work and pay attention to methods of training therein; there will then result a curriculum based on the essential unity of the human demand which includes both kinds of work. When this result shall have been attained and even when it shall begin to appear, the problems of compulsory education will be greatly reduced. The immediate view of our subject would seem to seek to discover effective ways of securing the maximum of attendance within the present range and limits of educational work. A fairer view will show that an extension of the range and limits of organized education in the training of children will be one of the best steps toward securing maximum attendance. With restricted curricula, long vacations, short hours and lack of organization, the present system is after all a matter of shreds and patches. Personally, I should not ask a larger proportion of the individual pupil's time or attention under present conditions. But through special schools for specific lines of work and interest, through the groping and rather puerile method of credits for outside work and through the occasional experiments in uniting the demands of toil and of education in its narrower sense, like those now under way at Gary and at Ogden, Utah, plans for bringing under a school regime the different lines of childish activities are beginning to formulate. At present organized education is often needlessly fearful of the effects on its higher centers of the so-called practical demands. If education is to be a training for life, we ought to view these opportunities as new and fertile fields for cultivation, with an increased scope of interest, happiness and balanced power. For what are we training people if not toward activity? How shall we secure that in its best form if we continue to separate the training of intelligence from the daily activities? When we combine them can we fail to secure the interest and attendance of every healthy little animal growing? The stunted and repressed may still baffle and compulsory laws may still be needed to reach the irresponsible parent who has escaped the training of this generation; but reduced to its lowest terms the problem is as much one of reaching through the school the universal interests as it is of compelling attendance. This may seem a far cry from our present situation, with the need for compelling machinery. To me it seems not only to denote the ultimate goal, but the quickest way of reaching it.

To summarize: To meet our present varied and somewhat confused conditions, there is need of more effective machinery which shall include a standard law, a careful plan of registration, trained and effective officers to secure compulsory attendance with some state inspection and responsibility, and the combination under one direction of the permit privileges offered under the attendance and child labor laws. But these fully enforced would bring to us an immediate demand which the school must meet from within, namely to extend its effort, enlarge its interests and hold through satisfaction the pupils whom it may happen to secure by force.

Some years ago, a couple of city boys spending the summer on a farm volunteered to help the farmer catch a stray cow and her yearling calf. The cow had been tethered but had broken away, the calf was following. The older boy finally cornered them and the younger rushed back to the

house for a rope, explaining to his mother, "Mama, Jack has caught them; he is holding the cow by the rope and the calf with his voice." In holding the pupils who are at present non-attendants, we need to cultivate the "voice" of the school.

S. O. HARTWELL

KALAMAZOO, MICH.

THE PART PLAYED BY TEMPERATURE IN SCHOOL-ROOM VENTILATION

IT has been a difficult matter to maintain comfortable non-depressing atmospheres in crowded rooms. The reason for this is due largely to ignorance of the conditions that make for comfort. The body gives off heat, moisture, odor and certain substances in the exhaled breath, chief of which in amount is the gas carbon dioxide. An occupied room increases in these products and bodily discomfort results from these excesses. In their efficient elimination or neutralization lies the success of ventilation.

The organic matter given off in the breath was first hit upon as the prime evil of bad ventilation, and many experiments were conducted with animals to demonstrate the presence of an active poison in respired air. Pettenkofer held that the production of organic matter was in proportion to the carbon dioxide output. This gas was easily determinable by chemical analysis and was accordingly made the basis of ventilation standards. Experiments contradicting the above were likewise conducted, but the harmlessness of respired air was never fully conceded.

It has only been within the last fifteen years that the importance of factors other than the chemical constituents of the atmosphere have been recognized. Experiments on human subjects during this period have tended to show that the distress experienced in overcrowded rooms is due chiefly to the resulting rise in temperature and humidity. The relief of fresh air at the same temperature is imperceptible, but the removal of the warm stagnant air about the body at once affords comfort.

With the object of determining more accurately the relative importance of these different factors of the air environment—temperature, humidity, chemical composition, rate of air movement, bacteria and dust—the New York State Commission on Ventilation has been carrying on experiments in their laboratories at the College of the City of New York for the past two years. This body was created by gubernatorial appointment at the request of the New York Association for Improving the Condition of the Poor. For carrying on this work, the sum of $75,000 has been given by Mrs. Elizabeth Millbank Anderson. The latitude of this subject was appreciated in selecting as members of this commission, a physiologist, Professor F. S. Lee; a psychologist, Professor E. L. Thorndike; an engineer, Mr. D. D. Kimball; a physician, Dr. J. A. Miller; a chemist, Professor E. B. Phelps, and a sanitarian, Professor C.-E. A. Winslow.

The laboratory at the college consists of an experimental room elaborately fitted with heating and cooling devices, and air circulating machinery so that any air condition met with in practise can be reproduced. By this arrangement it is possible to isolate the different air factors and study them independently.

Students of the college and of neighboring institutions were placed in the experiment room under different atmospheric conditions and their reactions were made the subject of careful study.

Three methods of noting the effects of these air conditions were possible, namely:

A. Opinions of the subjects as to comfort;

B. Physiological and physical activities;
C. Mental accomplishments.

Up to the present writing, the results of this study including observations on nearly 100 individuals for continuous periods of one to six weeks, from four to eight hours daily, indicate unquestionably that

1. Temperature exerts a marked influence on comfort. Rebreathing the air of the unventilated room does not cause discomfort.

2. Temperature affects markedly certain physiological reactions of the body. The accumulation of respired air products has an exceedingly minor effect on the body functions.

3. Temperature within the range from 68 to 86 degrees Fahrenheit does not affect the ability to do mental work. It does, however, influence the attractiveness of mental tasks. Breathing the same air over and over again has no observed effect whatever on either the ability to do mental work or on the desire for doing such work.

The physiological observations have included records of body temperature, pulse, blood pressure, respiration and certain detailed studies on metabolism.

When exposed to a temperature of 68 degrees for four hours, it is found that the body temperature falls. In a hot room, there is an increase. Thus in one series of tests it changed from 37.30 degrees C. at 2 P.M. to 36.50 degrees at 6 P.M. An exposure for a similar period at 86 degrees showed a change from 37.40 degrees at 2 P.M. to 37.46 degrees at 6 P.M. The effect of quantities of fresh air blown into the room when the temperature was 86 degrees gave no different effect on the body temperature than entire absence of ventilation.

The tendency of the pulse is to decrease in rate during the day when the body is exposed to a normal temperature of 68 degrees. The blood pressure drops slightly. When subjected to several hours in a hot room, the pulse rate quickens and the blood pressure weakens perceptibly. The relation between the increase in pulse rate in an erect position over that when lying down and the change in blood pressure with a similar shift in posture has been expressed in a percentage scale by Dr. C. Ward Crampton. Thus a slight increase in pulse on standing, together with an actual rise or very small decline in blood pressure, is stated to represent a good vaso-motor tone and hence a high percentage rating. A rapid increase in the pulse with a corresponding drop in blood pressure on standing is given a low value. Expressed in these terms, in these experiments, it was found that a normal room temperature of 68 degrees produced an improved vaso-motor tone, in one series from 45 per cent. at 2 P.M. to 68 per cent. at 6 P.M. In an atmosphere of 86 degrees the Crampton value changed from 50 per cent. at the beginning of the period to 33 per cent. at 6 P.M. When no ventilation was supplied and the subjects remained in the room four hours breathing the same hot air over and over again with the slight diffusion permitted by leakage around doors and windows, the Crampton value decreased from 45 per cent. at the beginning to 35 per cent. at the end.

The rate of respiration, time of food digestion and other metabolic processes did not seem to be affected either by changes in temperature within the range mentioned or by changes in the amounts of fresh air supplied.

The effect of air conditions on mental proficiency was observed by giving the subjects standard psychological tests, such as adding columns of figures, mental multiplication, naming opposites of words, typewriting and cancelling numbers. The average scores in these various tests were

found to be about equal regardless of the temperature or the absence of ample ventilation. Even a hot moist room, 86 degrees, which caused profuse perspiration and very positive discomfort, failed to lower the standard of efficient work. The scores fell off perceptibly, however, in the hot room, when the subjects were allowed to work or not as they pleased. No such change was noted when the air supply was reduced to a minimum. In fact, the average result of daily votes in one series indicated a greater degree of comfort with no air supplied at all than on the days with ample ventilation. The room temperature in both cases was kept at 68 degrees.

The degree of stagnation on these unventilated days is shown in the amount of carbon dioxide present. This substance increased to over 30 parts per ten thousand parts of air, and on some days was found to reach 130 parts. It should be remembered that the amount of carbon dioxide in the outdoor air is about 3 parts per ten thousand. A common standard for schoolrooms in many states is 8 parts in ten thousand.

The comparative effects of heat and used air referred to above were observed with the subjects sitting quietly at rest. Exposure to the same air conditions was tried with the subjects engaged in physical work such as riding a stationary bicycle with an artificial resistance, or lifting five-pound dumbbells. The same physiological effects were found. Differences were caused by temperature, but not by changes in amount of fresh air. Even a room temperature of 75 degrees produced the same physiological reactions as 86 degrees, although to a lesser degree. The seventy-five degree temperature is one frequently approached by so many schoolrooms, and the above results tend to show that the cause of inattentiveness, restlessness and poor work among pupils is due to the temperature of the room rather than to the chemical quality of the air.

A record of the actual amount of physical work done showed a 37 per cent. increase at 68 degrees over that at 86 degrees, and 15 per cent. more at 68 degrees than at 75 degrees. Now by grouping the accomplishments on the fresh air days and the stagnant air days, separately, the temperatures being equally balanced in this average, we find in one series about 5 per cent. more work accomplished on days without ventilation and in another series 2 per cent. more done on days with ventilation. In other words, temperature again is the controlling factor and air supply is a minor one.

The facts so far brought to light have indicated strongly that it is much the wiser thing to avoid even slight overheating of rooms rather than to watch the air supply and neglect temperature. In only one instance so far in all the different tests used by the commission has the objectionable effect of a crowded room shown itself to be due to the chemical impurity of the air. This test has been one in which the amount of food consumed at lunch time has been measured. When ample air was supplied 13 per cent. more food was found to be eaten than on days of no ventilation. At 68 degrees 5 per cent. more food was consumed than at 86 degrees. In another series, only 1.5 per cent. more food was eaten in a 68 degree room than at 75 degrees. With plenty of ventilation, however, the food consumption was 9 per cent. greater than that in the stagnant room.

The work of the commission is but partly completed, but one sharply defined conclusion stands forth above all others, and that is that temperature and not the chemical composition of the air we commonly breathe

exerts relatively the most marked effect on the body.

These results do not warrant the interpretation that the school child is just as well off in a stagnant, ill-smelling room as in a room with clean air effectively distributed.

Furthermore, it must not be concluded from this that opening windows is futile and that fan ventilation is unnecessary. Both well serve their purpose of (*a*) cooling the room and (*b*) making the air fresher, or in other words, diluting the odors produced by unclean clothing.

In our experimental chamber it is possible to separate these factors by themselves but in practise both coolness and freshness are best ensured by admitting fresh air.

The questions of humidity and air circulation as well as methods of obtaining the best room conditions will occupy the attention of the commission during the next two years. This work is to be continued at the college laboratory and also at one of the new city school buildings of New York where two full-size school rooms have been fitted up for the purpose. Detailed studies of existing school ventilating systems will likewise be made to yield further practical information.

George T. Palmer

EDUCATIONAL EVENTS

EDUCATIONAL LEGISLATION

The Bureau of Education supplies us with the following statement of laws enacted in several states:

FLORIDA

Providing teacher training in high schools under the direction of the state department of education. The state appropriates $500 to one high school in each county, provided the county appropriates an equal amount.

Providing for local optional compulsory education to be adopted by vote of counties or school districts.

Authorizing county boards of education to make appropriations for home economics and domestic science in rural schools and to provide for the supervision of these subjects.

Providing inspection of schoolhouses by a county school health officer, and severe penalties for neglect in keeping school closets in sanitary condition.

Granting teaching certificates to men and women completing certain courses in the state university and in the state college for women.

ILLINOIS

Providing teachers' pension and retirement fund. (Passed both houses.)

NORTH CAROLINA

Amending the law relating to the school census. The local school committees are required to take the school census and furnish the same to the county superintendent and to the teacher by the opening day of the school term. Heretofore the census has been taken annually by the attendance officer. The new census will contain the names of all persons twelve to twenty-one years of age who can not read and write.

Providing for the apportionment of high school funds from the state. Schools to be eligible must maintain an average daily attendance of at least twenty students, and money is distributed on a triple basis—attendance, number of teachers and grade of work done.

PENNSYLVANIA

Regulating the transfer of school districts from one class to another when annexation of borough or township occurs.

Amending section 1,439 of the school code to provide for the education of blind children beyond the age of eight years by the state board of education when for special reasons it may be necessary.

Amending sections 2,701 and 2,702 of the school code to provide that the net receipts from forest reservations, waterrights, etc., of the state shall belong to the state school fund.

Making incompatible the offices of councilmen and school directors in municipalities.

Resolution authorizing an inquiry into the advisability of a state educational building at Harrisburg.

Providing that county commissioners may furnish school superintendents with telephone, typewriter and stenographer.

Creating a bureau of vocational education.

TENNESSEE

Reorganizing the state board of education. The new board shall consist of nine members appointed by the governor, three from each grand division of the state, with the state superintendent as *ex-officio* secretary and executive officer of the board. The term of office shall be six years with one third of the board retiring at the end of each biennium. The board shall serve without pay, except necessary traveling expenses; shall assume all the powers and duties now conferred upon the present board; and in addition shall appoint the state superintendent of public instruction, fix his salary and tenure of office.

INTERNATIONAL MONTESSORI TRAINING COURSE

As has already been noted in SCHOOL AND SOCIETY, the Panama-Pacific International Exposition, through its department of education, has arranged with Dr. Maria Montessori to conduct an international Montessori training course in connection with the exposition in San Francisco. This course has been arranged in order that teachers, parents and others interested in child study may have the benefit of Dr. Montessori's personal instruction before her return to Rome.

Students enrolled in the course will have the benefit also of the demonstration classes, daily free admission to the exposition with all courtesies usually extended to associates of an honored guest from abroad by an exposition, and typewritten copies in English of all of Dr. Montessori's lectures.

At the close of the course a certificate from Dr. Montessori will be given to all who have satisfactorily finished the work. Such certificate entitles the holder to use this method in the teaching of little children and will serve as credentials for admission to a later elementary course. An honorary certificate will be issued by the Panama-Pacific International Exposition to the members of the class.

An enrollment of fifty will effect organization of the class and as the total number of students who can be accommodated is limited, those interested are requested to apply at once.

The regular course opens August 1 in San Francisco and continues until November 30. However, students who desire to do so may commence work July 1, in San Diego, and complete the course during August, September and October in San Francisco. It may be possible for those more limited in time to make special arrangements for completing the course without interference with school duties.

The principal object for organizing this course in connection with the Panama-Pacific International Exposition is to afford an opportunity for thorough and critical study of this method of child training by leading educators who will gather in San Francisco during the summer on account of the exposition and the sessions of the national and international education associations.

It is hoped that city boards of education may wish to take advantage of this opportunity by appointing a teacher to take the course in order that the city may give the method a thorough trial during the coming year.

A committee of ladies will make arrangements for meeting students and securing satisfactory lodging and board.

An advisory committee of patrons has been formed consisting of Hon. P. P. Claxton, U. S. Commissioner of Education; Miss Margaret Wilson, Washington, D. C.; Mr. Alvin E. Pope, chief of department of education, Panama-Pacific Exposition; Dr. David Starr Jordan, president, National Education Association; Ella Flagg Young, Chicago, Ill.; Dr. Francis Sage Bradley, U. S. Department of Labor, Children's Bureau; Dr. Frederic Burk, president, State Normal School, San Francisco; Dr. Jesse Millspaugh, president, State Normal School, Los Angeles; Dr. E. L. Hardy, president, State Normal School, San Diego; J. H. Francis, superintendent, city schools, Los Angeles; J. F. Sims, president, State Normal School, Stevens Point, Wis.; George B. Nelson, member board of normal regents Wisconsin; Duncan MacKinnon, superintendent of schools, San Diego; Dr. Margaret Schallenberger, State Commissioner of Elementary Education, California; Mrs. May L. Cheney, University of California, Berkeley, Cal.; Warren D. Parker, Pasadena, Cal.; Miss Clara E. Craig, member Rhode Island State Board of Education; Mrs. F. G. Sanborn, president, Women's Board,

Panama-Pacific International Exposition, San Francisco; Dr. Adelaide Brown, San Francisco; Dr. Mariana Bertola, president, Victoria Collonna Club, San Francisco; Wm. Q. Osborn, assistant superintendent of schools, Tacoma, Wash.; Mrs. Jesse H. Steinhart, San Francisco; Mrs. Edward Erle Brownell, San Francisco; Mrs. Wm. Crocker, San Francisco.

PUBLIC HEALTH COURSES AT NEW YORK UNIVERSITY

With all the bureau chiefs of the New York City Health Department on the teaching staff, and with the sanction and approval of the state public health council, the university will, beginning July 15, undertake to train health officers for their jobs. A two-year course leading to a new degree—doctor of public health—will be offered, and, in addition, a six-weeks summer course. The equivalent of the shorter course may also be taken by mail, finishing with a week of laboratory work.

Dean William H. Park, M.D., of the medical college, and Dr. Herman M. Biggs, associate professor of medicine and state commissioner of health, are responsible for the new courses. It has been felt by the health authorities of the state for some time that a health officer should be something more than a good physician. Governor Sulzer's public health commission recommended that the medical colleges of the state introduce courses in sanitary science leading to a degree which might ultimately be required of all health officers. This month the public health council of the state, which has legislative powers if it chooses to exercise them, added a recommendation that the shorter courses also be given.

The council—which is headed by Doctor Biggs—sent out a letter last week to all health officers in the state, advising them to take the courses, which will be given, in part at least, by Cornell, Syracuse and the University of Buffalo in addition to New York University. The letter contained an intimation that the requirements for health officers would be raised in the near future. This week the announcement of New York University's courses goes out to the health officers.

Through his position as director of the bureau of laboratories of the city health department, Dr. Park found it easy to secure the cooperation of the health authorities. The health commissioner, Dr. S. S. Goldwater, and the health officer of the port, Dr. Joseph J. O'Connell, have expressed their hearty approval of the plan. All the bureau chiefs will lecture on their particular subjects, and laboratory and field work will be conducted under their supervision.

The six-weeks course, which is also the beginning of the two-years course, includes lectures covering the range of public sanitation. Dr. Haven Emerson, deputy commissioner of health, for example, will lecture on health administration and health laws. Dr. S. Josephine Baker, director of child hygiene, will tell about methods and results in child welfare work. Dr. John S. Billings, director of the bureau of infectious diseases, will handle the subject of communicable diseases, the control and care of tuberculosis, etc. Dr. O'Connell, health officer of the port, will lecture on state and national quarantine. Candidates for a degree will continue lecture and laboratory work through the first year, and in the second year prepare a thesis upon some problem in public health. The lectures in the new courses will be given at the medical college. The courses, however, are not a part of the medical curriculum, and are connected with the medical college only through Dr. Park, who directs them. A large part of the work will be conducted outside the college, in the laboratories, stations and offices of the city health department, and actually in the field.

EDUCATIONAL NOTES AND NEWS

At its recent commencement Harvard University conferred the degree of doctor of laws on President Isaac Sharpless, who was thus addressed by President Lowell: "Isaac Sharpless, president of Haverford College, who put aside the lure of expansion and made the college eminent for sound learning, scholarship and character."

After he had delivered the commencement address at the University of Michigan on June

24. Dr. William Oxley Thompson, president of the Ohio State University, was granted the honorary degree of doctor of laws.

AMHERST COLLEGE has conferred the degree of LL.D. on William H. P. Faunce, president of Brown University, and the degree of L.H.D. on Alfred E. Stearns, principal of Phillips Academy, Andover.

FIFTY years ago William North Rice was graduated from Wesleyan University, and two years later was elected professor of geology and natural history, a title which was changed to professor of geology in 1884, when the department of biology was established. Professor Rice's services as teacher, administrator and investigator were acknowledged by the conferring on him of the degree of doctor of laws by Wesleyan University at its recent commencement.

PRESIDENT J. G. SCHURMAN, of Cornell University, is first vice-president of the New York State Constitutional Convention, now sitting in Albany.

THE election of overseers of Harvard University resulted as follows: Robert Grant, of Boston; William de Witt Hyde, president of Bowdoin College; Robert F. Herrick, of Milton; William Sydney Thayer, of the Johns Hopkins Medical School, and Dwight Filley Davis, of St. Louis.

VACANCIES remaining to be filled on the council of the American Association of Professors have been filled by the council by the election of the following members: J. Q. Dealey, Brown University; L. H. Haney, University of Texas; Theodore Hough, University of Virginia; Morris Jastrow, University of Pennsylvania; G. H. Marx, Stanford University; Henry Taber, Clark University. One vacancy still remains to be filled.

THE title of professor of horticulture, emeritus, has been conferred by the University of California upon Edward J. Wickson, known for his work on the fruits, vegetables and flowers of California, a member of its agricultural faculty since 1880, and dean of the College of Agriculture from 1909 to 1912.

DR. COLIN A. SCOTT, of the Boston Normal School, has been appointed professor of education at Mount Holyoke College to fill the vacancy caused by the resignation of Professor Kohl.

DR. J. E. W. WALLIN, director of the psycho-educational clinic in the public schools of St. Louis, will conduct psycho-educational clinics, clinical conferences and lectures during a portion of July at the Panama-California Exposition at San Diego.

DR. PAUL R. RADOSAVLJEVICH, assistant professor of experimental pedagogy in the school of pedagogy of New York University, has been promoted to a full professorship. Dean Thomas M. Balliet will take his sabbatical year next year, and Professor James E. Lough has been appointed lecturing dean during his absence.

PROFESSOR ALVIN S. JOHNSON, of the department of economics at Cornell University, has received leave of absence for the year 1915–16.

ASSISTANT PROFESSOR EARLE BROWNELL BABCOCK, of the department of Romance languages and literatures in the University of Chicago, has accepted a professorship of Romance languages and literatures and the headship of that department in New York University.

CARROLL R. REED, master of the Pierce School, Newton, has become superintendent of schools at Amherst and Pelham. He will be succeeded at Newton by T. E. Freeman, who has resigned from the principalship of the Tracy Grammar School, Lynn. Mr. Reed is a graduate of Malden High School and Harvard and has taught in Maine, New Hampshire and Rhode Island.

THE Chelsea (Mass.) school committee has elected Herman Gammons, of Lewiston, Me., as principal of the high school. Mr. Gammons is a graduate of Bridgewater Normal School, 1901, and of Harvard, 1910. He has taught in several Massachusetts schools, and since 1912 has been principal of the Lewiston High School.

GRAND DUKE CONSTANTINE CONSTANTINOVITCH, who died on June 15 at the age of fifty-

seven years, was actively interested in education, science and letters. He was at the time of his death president of the St. Petersburg Academy of Sciences.

Dr. Moritz J. Bonn, director of the Handelshochschule in Munich, and a professor in the University of Munich, has been appointed lecturer on the Jacob H. Schiff Foundation of Cornell University for the year 1915–16. The *Cornell Alumni News* states that the appointment is provisional. If the war ends before next fall, Dr. Bonn, who is in this country now, will return to Munich, and in that case the Schiff lectureship will be filled by Professor Artur Weese, of the University of Berne, who was to have been at Cornell this year. Dr. Bonn was a lecturer at the University of California during the first semester of last year, and during the second semester he was Carl Schurz professor in the University of Wisconsin. His Schiff lectures are planned for the entire first term. His subject will be "International Economic Relations." There will be a three-hour course of public lectures and a two-hour course for an advanced class in economics.

Willard Austen has been elected librarian of the Cornell University Library to succeed George William Harris, who retires after forty-two years of service in that office. Mr. Austen was elected by the trustees at the board's meeting on June 16. He was nominated for the office by President Schurman after the president had received the report of a committee which had been created last winter to recommend a successor to Mr. Harris. On this committee the president appointed all the members of the faculty who had served on the Library Council since 1900. Mr. Austen has been assistant librarian and reference librarian in the library since 1892. He is a graduate of Cornell in the class of 1891.

Professor James H. Brewster, of the law faculty of the University of Colorado, who failed to be reappointed to his position by the board of regents, has issued a statement declaring that he has been removed on account of his sympathy with the Colorado union miners in their recent strike. He was one of the lawyers for the union before the congressional committee which investigated the strike in the spring of 1914. Professor Brewster's statement is addressed to his former associates on the law faculty of the University of Michigan. He says that his attitude regarding the strike had so undermined him with the regents that his reappointment became impossible. On May 7, the statement adds, he received a telegram from Frank P. Walsh, chairman of the United States commission on industrial relations, asking him to testify at Washington. He showed the message to President Farrand. The statement continues: "President Farrand told me that my going to Washington was a matter for me to decide, but if I went my connection with the university must end. I stated that as it would be difficult to obtain a substitute for my work I would not go. He said, 'That is much more comfortable.'"

Mr. Taft has been appointed lecturer on the Goldwin Smith Foundation of Cornell University for the year 1915–16. It is hoped that he will be able to give a course of lectures here to occupy not less than two weeks.

Dean Albion Woodbury Small, of the graduate school of arts and literature in the University of Chicago, gave the commencement address at Cornell College, Iowa, on June 17.

On June 18, Professor Nathaniel Butler, director of cooperating schools at the University of Chicago, was the speaker before the graduating class of the Scott High School of Toledo, Ohio. He also gave commencement addresses before high schools in Illinois on June 24 and 30.

Associate Professor Rollo LaVerne Lyman, of the school of education of the University of Chicago, spoke before several high schools in Wisconsin and Illinois at commencement time, and will lecture at the University of Kansas during its summer session.

The first award at the University of Chicago of the medal given by the Intercollegiate Conference Athletic Association for combined

excellence in athletics and scholarship has been made to Francis T. Ward, captain of the university track team.

GEORGE B. ROORBACH, instructor of geography in the Wharton School, University of Pennsylvania, has received an appointment from the Carnegie Endowment for the Advancement of International Peace to carry on investigations this summer in Venezuela on the effect of the war on industrial, commercial and financial conditions in that country. Mr. Roorbach sailed for Venezuela June 16, to be gone during the vacation.

AMONG lectures arranged for the summer quarter at the University of Chicago is a series on "The Present European War." The series will be opened on June 29 by Professor William I. Thomas, of the department of sociology and anthropology, whose subject is "Racial Traits Underlying the War." On June 30 Assistant Professor Carl Frederick Huth, of the department of history, will discuss the subject of "Pan-Germanism," and on July 1 Assistant Professor Conyers Read, of the same department, will speak on "The Triple Alliance and the Triple Entente." Other speakers in the course will be Samuel Northrup Harper, assistant professor of the Russian language and Russian institutions; J. Paul Goode, associate professor in the department of geography; James Henry Breasted, professor of Egyptology and oriental history; and Andrew Cunningham McLaughlin, head of the department of history.

AN Intercollegiate Zionists' Association of America has been formed at a meeting held at Harvard University. The object of the organization is to further the Zionist movement among college men. Eleven colleges were represented. Addresses were made by Louis D. Brandeis, of Boston; Professor Felix Frankfurter, of the Harvard Law School; Dr. Horace M. Kallen, of the University of Wisconsin, and Professor I. Leo Sharfman, of the University of Michigan.

THE Third Annual Sociological Conference, under the auspices of the Extension Division of the University of Colorado, is meeting this week at Boulder. The general character of the conference is the same as that of the two preceding ones, namely, an open forum for the discussion of social problems, with the emphasis about equally divided between educational and practical aspects. The chief departure this year is the division of the conference into sections, each of which has been placed in charge of a special committee which has arranged the program for its own day. Besides the speakers from within the state, the invitations have been accepted by David Starr Jordan, chancellor of Leland Stanford Junior University; Mary C. Lathrop, chief of the Federal Child Welfare Bureau; Dr. Charles A. Ellwood, professor of sociology, University of Missouri; and Dr. James E. Le Rossignol, professor of political economy and commerce, University of Nebraska.

IN connection with the different congresses on education at the Panama-Pacific Exposition, The Religious Education Association conducts a congress August 27–29, on the theme "Religious Education and the New World Order." The morning sessions are devoted to conferences on practical aspects of religious training and instruction; the afternoons to papers and discussions on the college in relation to the theme of the congress; and the evening sessions to addresses directly on the general theme. The list of speakers includes the following: President Benjamin Ide Wheeler, Bishop William F. Nichols, President William T. Foster, Dr. Samuel A. Eliot, Chancellor David Starr Jordan, Honorable P. P. Claxton, Dr. Henry F. Cope, Sidney L. Gulick, President Charles F. Thwing, President Joseph Swain, President Henry C. King and President A. Ross Hill.

ARCHBISHOP IRELAND made the address of welcome to the delegates at the first general session of the Catholic Educational Association's twelfth annual convention, meeting at St. Paul on June 29. The day's program included meetings of the college, seminary and parish school departments. Archbishop Ireland is reported to have said that nearly a million and a half pupils were receiving instruction in the schools established in the

United States by the Catholic church on the contention that "religion should permeate and vivify the education of childhood and youth." This education is not obtainable in the home, he said, as few parents are capable or willing to teach religion. "While religious instruction is given precedence in these institutions," the archbishop said, "other themes are given their share of attention, so that in matters of secular knowledge the Catholic schools rank with the best institutions of the state."

THE Hahnemann Medical College of San Francisco has offered to convey all its property to the University of California, and has proposed to cease separate instruction. Instead two professorships are to be maintained in the University of California Medical School in homeopathic materia medica and in homeopathic therapeutics, the financial provision therefor to be made, for the next two years, by the homeopaths. The instruction in homeopathic materia medica and homeopathic therapeutics will be offered as elective courses. In all other respects students wishing eventually to become homeopathic practitioners will receive exactly the same instruction in the University of California Medical School as all of its other students.

IN connection with the commencement exercises of Amherst College the announcement was made that the trustees had appointed two important committees, one to plan for the centennial festivities of the college in 1921; and another to raise a fund of a million dollars to meet the growing needs of the college.

DISCUSSION AND CORRESPONDENCE

SCHOLARSHIP AT VIRGINIA

STATISTICS appearing in the recent number of *Corks and Curls*, the annual publication of the students of the University of Virginia, throw some interesting light upon scholarship in its relation to fraternities and the various branches of college activities. The statistics were compiled from the registrar's books somewhat after the following manner: first, every examination grade of every man in the university was ascertained, and then the individual averages were made. With these averages those of the various fraternities, athletic teams, publication editors, etc., were obtained. The passing grades vary with the different departments; *i. e.*, in the academic, graduate and engineering departments 75 per cent. is required, while in law 83 per cent. is the passing grade, and in medicine the successful student must make at least 80 per cent.

This variance perhaps has changed the result of the statistics to a small extent, since a fraternity, for instance, having a large percentage of law students, would be apt to have a higher average than one with a preponderance of academic and engineering students. But, on the whole, these differences are small and the results are fairly typical.

First, with regard to scholarship in the fraternities. The average grade of all fraternity men was found to be 82.1, while that of the non-fraternity men was a fraction of a point less, or 80.4. Thus the condition which has so often caused the opponents of the college societies to decry their existence has, at Virginia at least, been reversed; the fraternity men are as good or better students than the non-fraternity men.

Again, in the four years that *Corks and Curls* has published such statistics, the average grade of all fraternity men has risen steadily until now it is seven points higher than it was in 1910–11, which, it would seem, further strengthens the principle of publicity of scholarship that several fraternities have recently adopted. The effect of competition in this respect between the various chapters is apt to be one such as has resulted at Virginia.

The relative scholastic standing of the twenty-three fraternities at Virginia for the session 1913–14 was found to be as follows: Kappa Alpha, Sigma Alpha Epsilon, Delta Psi, Sigma Phi Epsilon, Delta Chi, Theta Delta Chi, Pi Kappa Alpha, Kappa Sigma, Delta Phi, Chi Phi, Delta Tau Delta, Phi Delta Theta, Alpha Chi Rho, Phi Sigma Kappa, Delta Kappa Epsilon, Phi Gamma Delta, Zeta Psi, Alpha Tau Omega, Beta Theta Pi, Sigma Nu, Phi Kappa Psi, Sigma Chi and Phi Kappa Sigma. The first eighteen

of these fraternities made averages of over 80 per cent.

To turn to athletics, the average grade of all athletes was found to be only 1.1 points less than the average of all non-athletes. Taking into consideration the number of students who are above the average and who take no part in athletics, this average would tend to show that athletes make grades equally as good as the typical non-athlete. If we glance at the separate branches we find football leading the list with an average higher by 1 point than the average of all non-athletes. These statistics at least weaken the theory that athletes can not combine their labors on the gridiron and diamond with those of the library and lecture room. At Virginia, further evidence is offered by the fact that two of the 'varsity football players during the 1913–14 session received Rhodes scholarships to Oxford University.

In another group of figures headed "College Activities," *Corks and Curls* includes managers of teams and publications, editors, class officers, General Athletic Association officers and Y. M. C. A. officers. The average grade of students taking part in such activities was found to be 4.3 points better than that of the university at large. This evidently points to the fact that better students enter such work. This is as it should be, yet it is often urged that, due to cliques and the like in college organization, class officers and others are elected because of their popularity rather than for their worth. Possibly this is true, but it is not unreasonable to argue further that men obtain popularity not altogether because of their good fellowship but also because of their worth.

These figures bring out several interesting points. In each case they tend to show the fallacy in those arguments which are so common and which the college man, who goes to college to get all that it has to offer, hates so to hear. At Virginia it is shown that college activities can be combined with studies without lessening the benefit to be gained from the latter. Conditions can not be far different elsewhere.

And, after all, in the final analysis, a college education is not meant solely to give the student a knowledge of the classics, differential calculus, the principles of psychology and the like. It is intended, rather, to bring him, as Huxley said, "in harmony with nature." It follows, therefore, that the greater his field of activity at college, the nearer will he come to a realization of this fundamental purpose.

S. T. BITTING

UNIVERSITY OF VIRGINIA

THE SUPERINTENDENT OF THE PHILADELPHIA SCHOOLS

TO THE EDITOR OF SCHOOL AND SOCIETY: The following editorial note appears in the New York *Sun:*

Governor Brumbaugh has vetoed the repealer of the Pennsylvania full crew law. But we presume that if the governor were engaged in business and the state were to undertake to determine how many employees he had to hire to run his establishment efficiently his indignation would be as righteous as anybody's.

May I venture to call attention to the fact that Governor Brumbaugh was engaged in business and the state undertook "to determine how many employees he had to have to run his establishment efficiently." The establishment was run efficiently and it is not known that he was righteously indignant. Dr. Brumbaugh was superintendent of the schools of Philadelphia when he was elected governor of the state of Pennsylvania.

PENNSYLVANIAN

QUOTATIONS

THE UNIVERSITY OF PENNSYLVANIA AND PROFESSOR NEARING

WE are, as alumni of the University of Pennsylvania, very directly interested in the discussion occasioned by the abrupt termination of the connection of Dr. Scott Nearing with the university. It has been generally assumed that this action on your part has been due to the views on social and economic questions expressed by Dr. Nearing. For two years in the press throughout the United States it has been repeatedly stated that Dr. Nearing would be dismissed because his views differed from those of the trustees. This dismissal has

now become a fact, and the press persists in placing it upon these grounds. If unexplained, we believe the public generally will accept these grounds as true ones. In view of the circumstances, and the relation of the university to the public, we deem it of the utmost importance that the trustees state clearly the reasons for their decision, so that the alumni may be able to take such action as seems to them appropriate on undisputed facts.

The public has come to consider our institutions of learning as centers where current problems can be discussed, and the slightest suggestion of an effort on the part of any group of individuals to use their power over the means of livelihood of professors to influence the expression of this thought affects the confidence of the whole community in the sincerity of opinions voiced by all professors and instructors.—*Letter to the trustees from a committee of twenty alumni.*

The Nearing case has been so presented to the public as to appear to be a case involving the right of a university teacher to free speech. Freedom of speech, however, is not the real issue in this case. The question is one of Dr. Nearing's personal fitness for the position he occupied.

The right to freedom of speech, restrained by common sense and common decency, is a right to be cherished and a right that has never been trenched upon or abridged by the University of Pennsylvania. There are certain recognized limitations of this right; we know of no better statement of them than that made by Professor Schelling in his recent commencement address at the university:

> In this right of independent thought and liberty of speech there inheres in the case of the teacher also a similar obligation to that which limits all freedom, the obligation that that freedom be exercised in absolute regard for the rights of other men. If, then, it shall be the high calling of any one of you to teach, to give to others knowledge out of the fulness of your own, do not carry on your further education in your class room, trying experimental ideas on those who have as yet no critical basis by which to test the efficacy of your thought. Do not seek repute by astonishing, untested theories which may attract attention peradventure as much to your precipitancy as to your ignorance. It is not among the privileges of the teacher to be banal or vulgar.

The rules which Professor Schelling so stated were clearly violated in and out of the university by Dr. Nearing, whose intemperate, persistent and astonishing expressions of untested theories, and whose unrestrained condemnations of institutions and rules which form the basis of civilized society passed the most generous bounds of free speech allowed by any institution, and gained for Dr. Nearing a notoriety and a discredit which reflected upon the university.

The alumni could not fail to perceive this situation and many of them have thought that the trustees were slow in severing a connection that subjected the university to continual criticism.

In dispensing with Dr. Nearing's services we believe that the trustees have expressed and given effect to the judgment of a large majority of the members of the university faculties, of the students and of the alumni.—*Statement signed by twenty-three alumni.*

I do not question for a moment Dr. Nearing's right to entertain and publicly express his views upon social, political and economic questions, though all will concede that even the rights of freedom of speech and of free academic discussion may be abused and should be exercised with a decent regard to the opinions of others.

I voted against the reemployment of Dr. Nearing. I did so in the discharge of my duty as trustee, because I believed that the good of the service and of the university required me so to do and because of professional utterances in the university, unbecoming a teacher and against the best interests of the institution and its student body. I shall not enter into detail further than to say, as an indicative instance, that an instructor who intemperately declares, as reported to us by his dean, that "if I had a son, I would rather see him in hell than have him go to the Episcopal Academy"—one of the long-established and best preparatory schools in the city and a fit-

ting school of the university—invites dismissal.

Dr. Nearing's contract of employment by the university was a yearly one. It terminated at the end of the present academic year. He was then at liberty to renew the contract or go elsewhere, as he chose. The university had a corresponding right. Accordingly, the trustees, in their best judgment and a conscientious discharge of their duty, decided not to reemploy him. As between the parties, therefore, Dr. Nearing's contract of employment has simply come to an end, and a dignified silence upon the subject would ordinarily be the proper attitude of the trustees; hence, when questioned heretofore, I have begged to be excused from discussing the matter or referred the questioner to the provost and Dr. Nearing.

Recognizing, however, that this silence is being misunderstood by the alumni and the public, as evidenced by the discussion in the newspapers and letters received, I have thought it proper to make this statement regarding the discharge of my duty as trustee.—*Statement by John C. Bell, a trustee of the University of Pennsylvania.*

I want to nail the nasty insinuation contained in this statement in which Mr. Bell makes it appear that Dr. Nearing had expressed himself too vigorously in the classroom on students coming from the Episcopal Academy. Dr. Nearing probably did say that he would rather send his boy to hell than to the Episcopal Academy, but he did not say it publicly nor did he say it in his classroom.

Wharton Barker told me that the trustees had learned from Roswell McCrea, the dean of the Wharton School, that Dr. Nearing had made such a statement. But he said this to Dr. McCrea in his private office as a private expression of opinion, and nothing else. The statement was called forth by Dr. Nearing's disgust with several students he had received from the Episcopal Academy, and was intended to go no further than his superior in the school.—*Reply of Harrison S. Morris, chief executor of the estate of the late Joseph Wharton, founder of the Wharton School.*

Dr. Nearing's influence on his students and in the community has been valuable. He is one of the groups of vigorous and active teachers who have done much to make the Wharton School what it is.

But the manner of Dr. Nearing's dismissal raises a larger question than that of his own personality and opinions. There is a widespread, almost universal sense of resentment among professors at the university. It has been a most disheartening occurrence. The freedom of opinion and its expression that was described by Professor Schelling in his recent commencement address and the comparative security of tenure that is essential to good teaching seem both to have been disregarded in this case.

To-day every assistant professor in the university feels that he may be removed without warning, after it is quite too late to make an academic connection for the next year. Not merely assistant professors, but men of every academic grade at the university feel themselves humiliated by an action that, however legal, is nevertheless derogatory to their positions and destructive to their proper service. Such results can not fail to bring serious injury upon the university.—*Statement by Professor Edward P. Cheyney of the University of Pennsylvania.*

If it should prove impossible to present the case for the faculty before a court of law, by virtue of some legal technicality, perhaps the faculties of the University of Pennsylvania may join in a petition to the next state legislature to revive the old University of the State of Pennsylvania on the ground that the terms of the agreement between the University of the State of Pennsylvania and the College and Academy of Philadelphia, which terms are incorporated in the act of 1791, have been violated by the trustees' enactment of the by-law in question.

If the present equipment and endowment of the university are indeed the property of the trustees, to be administered in secrecy as they see fit, let them take their private property and

with their own money run a dwindling, sectarian concern, but let others take the state appropriation and such gifts as may have come from the city and conduct an institution of real learning and intellectual freedom. . . .

Many state and city employees are now protected from the spoilsman's hand by specific civil service laws. If no law, but only the pleasure of the trustees, determines the tenure of an officer of instruction at the University of Pennsylvania, it is well that scholars at this and other institutions of learning should be apprised of the fact. On the appearance of the provost's letter to Professor Nearing, one of the most distinguished members of the college faculty wrote to the provost that, while loyalty and affection for the university had inspired him in the past to decline more than one attractive call from other institutions, he now felt doubtful about declining similar offers in the future.

I have just received a communication from a professor at another university, an official of the Association of American Professors, which refers to the trustees' action in the case of Professor Nearing as "one of the heaviest blows that has been struck against academic freedom for some time," and which invites me to present a statement of the case to the association for consideration and action.

Do Mr. Bell and his fellow-trustees believe that the University of Pennsylvania can either keep or acquire men of academic probity and scholarship when they learn that they can be removed from office "at the pleasure of the power by which they shall have been nominated"?—*Professor Lightner Witmer of the University of Pennsylvania in an open letter.*

If in Philadelphia, as is alleged, Minerva has walked the streets to sell her favors, it might be supposed that she would choose the night. But she may now be ready to announce to the world that she has contracted a marriage of convenience. It is difficult to interpret otherwise the action of the trustees of the University of Pennsylvania in dismissing Professor Scott Nearing. This has indeed been done after the close of the academic year, and it may have been thus planned by the trustees in order to avoid publicity due to protests from the faculty and the students. In so far as this is the case, it indicates that success in exploiting public utility corporations does not necessarily conduce to a correct understanding of public and professorial interest in the cause of academic freedom.

As it is shameful for the soldier or the physician to shun danger in his own field, so the scientific man who for academic rewards distorts or conceals what he believes to be the truth betrays his trust, and officials of a university who use their power of withholding salaries and causing dismissals to influence the expression of the results of the investigations of the professor are guilty of dishonor. It is the most heinous form of bribery; if it can not be punished by the courts, those guilty must be held up to public contempt.

The existing organization of our universities, which permits the president or trustees to control the salaries of the professors and to dismiss them when not in favor, is clearly bad and leads to endless troubles. Such conditions are at present causing difficulties in at least ten institutions, the details of which could be given if it were desirable. One of them—the University of Utah—has been thoroughly investigated by the American Association of University Professors, and their report, adverse to the administration, has been published recently in *The Nation* and in SCHOOL AND SOCIETY.

But the case of Professor Nearing is worse than the others, for it brings into the full light of day a denial of the right of the professor to pursue his investigations in his own field. Professor Nearing is an admirable teacher and has the esteem of his colleagues in the University of Pennsylvania and elsewhere. He takes the modern view of the scope of economics—that it is concerned with human welfare. It has long been rumored that this standpoint has retarded his advancement and threatened his position.

Now Professor Nearing has been dismissed, and the trustees decline to give the reasons. But they must give them if the institution is

to maintain a position among our universities. It is not Professor Nearing who is on trial, but the university. If it is found guilty, no professor of standing should accept a position there. It may still have buildings, trustees, a provost, professors, students and a football team, but it will not be a university.—*A former professor of the University of Pennsylvania in the New York Tribune.*

The Pennsylvania professor who proposed to hold his position in defiance of the administration, which was the only authority as to the terms and obligations of his professorship, was properly dismissed. That is what would happen to an editorial writer if he were to disregard the things for which his paper stands and, for instance, to write Bull Moose or Democratic politics into a Republican paper because such was his conscience or convictions.

Conscience is not an infallible guide, as any novice knows, and convictions must be more than honest; they must be correct. If the professor has the right to give up a position because of his conscience and conviction, what about the right of trustees to consult their conscience and convictions?—*Chancellor James R. Day of Syracuse University.*

I am a firm believer in academic freedom. . . . The professor must be absolutely free to live his own life, to do his own thinking and to have the largest liberty in the conduct of his department. If, as time moves on, it is discovered that the professor's living, or thinking, or teaching is not in accord with the ideals, spirit and methods of the institution, then, in the interest of academic freedom, a separation must take place; and since the institution must remain, the professor must go.—*President L. H. Murlin of Boston University.*

BOOKS AND LITERATURE

EDUCATIONAL JOURNALS

The Journal of Educational Psychology (June)

A test of the ability of children to use language forms: Frances Jenkins.

Silent versus oral reading with one hundred sixth-grade children: Cyrus D. Mead.

Form and position in handwriting interpretation. Part II.: June E. Downey and John E. Anderson.

How well may pupils be prepared for high-school work without studying arithmetic, grammar, etc., in the elementary grades? J. L. Meriam.

The American School (June)

The survey of the University of Wisconsin: C. G. Pearse.

The national education association; preliminary announcement.

The school principal: Andrew B. Edson.

Ethics for Kansas schoolmasters.

Certain influences of the New England certificate board: Payson Smith.

Discipline in the high school: Fred Gladden.

EDUCATIONAL RESEARCH AND STATISTICS

THE BEARING OF HIGH SCHOOL SCIENCE ON A COLLEGE COURSE IN GENERAL ZOOLOGY

THE American Society of Zoologists, Eastern Branch, in 1903 after a lengthy discussion, appointed a committee to draw up the content of a high-school course in zoology that would lead to a one-unit college entrance credit. This was reported and approved at the Christmas meeting in 1904. Beside the outline of the proposed course a recommendation was added that students intending to take zoology in college be advised not to take zoology at school but devote their time in its place to physics and chemistry.

It has long been a subject of discussion whether a science as taught in the high school has any value as a preparation to future college work in that science. A "feeling" that one hears often expressed by science teachers of college freshmen is that they would rather have a student come to them without ever having had previous experience with the science than one who has had such a course in the high school. For this "feeling" is there any justification?

The zoological department of the University of Pennsylvania has for the past four years made a record of the previous history of its students. As the numbers seemed at this time large enough to have some significance, the record of two hundred and sixty-eight students being available, a table was made

showing the distribution of grades from different schools.

It was thought that a comparison of the students from public high schools, most of which teach biology in some form when compared with private high schools, few of which teach any biological science, some conclusions might be formed. In collecting the data it was found that the Philadelphia high schools gave about one third of the students and formed rather a natural group. About a third were from other public high schools located outside of Philadelphia. The great bulk of these were high schools in the smaller cities of Pennsylvania and New Jersey. The other third were from private schools scattered throughout the east but mostly located in the neighborhood of Philadelphia. These three groups being of nearly equal size (eighty-four, ninety-six and eighty-eight students, respectively) they were readily comparable.

The grades in use at the University of Pennsylvania are as follows: D means distinguished; G, good; P, passed; N, not passed; F, failed. For our purpose F and N are combined. The decimal rating of these marks varies with the instructor, but it is generally the practise to let P be above 60 and below 75. The important point to note is that there are four arbitrary classes into which students are placed supposedly in the order of their performance.

For ease of comparison the percentage frequency is given and in some cases in the tables the two upper and the two lower marks are combined and their difference also expressed in per cents.—plus if the higher marks form the larger class or minus if the smaller marks form the larger class.

TABLE I

The Per Cent. Distribution of Grades Received in General Zoology by Students of Different Classes of Schools. Data for Four Years

Schools	No.	% D.	% G.	% P.	% N.
Phila. high schools	84	15.1	43.0	35.6	6.0
High schools outside of Phila.	96	1.0	23.0	57.0	18.7
Private schools	88	1.1	13.6	46.6	38.6

Three tables have been compiled. Table I. shows the percentage frequency of the students in general zoology for four years according to the three groups mentioned above. Table II. is based on a census of the class 1914–15. This question was asked: "What sciences did you take during the last three

TABLE II

This table is the result of a census of this year's class in General Zoology. It shows the effect of the previous work taken by the student on his mid-year grade. Only the last three years at school are considered.

Students from		Mid Year Marks in General Zoology			
		No.	% D. and G.	% P. and N.	% Dif.
Phila. high schools	+Zoology	19	79	21	+58
" " "	−Zoology	16	36	64	−28
" " " +Chemistry	−Zoology	14	43	57	−14
+Physics	−Zoology	18	33	66	−34
" " " +Botany	−Zoology	7	57	43	+14
" " " −Chem.,	−Botany, −Zoology	2		*	
Outside Phila. high schools	+Zoology	11	18	82	−64
" " " "	−Zoology	28	18	82	−64
Private schools	+Zoology	1		*	
" "	−Zoology	14	21	79	−58

* Group in which the grades fell when the number was too small to calculate per cent.

TABLE III

Mid-year Grades of Freshmen in Latin, Mathematics and Zoology

Students from	Freshmen	Mid Year Marks			
		No.	% D. & G.	% D. & N.	% Dif.
Phila. high schools	Latin	21	53	47	+ 6
" " "	Mathematics	24	59	41	+18
" " "	Zoology	37	60	40	+20
High schools outside Phila.	Latin	31	35	65	−30
High schools outside Phila.	Mathematics	32	37	63	−26
High schools outside Phila.	Zoology	38	13	87	−74
Private schools	Latin	20	50	50	0
" "	Mathematics	17	35	65	−30
" "	Zoology	22	18	82	−64

years of high school?" The answers to this question are tabulated with respect to the mid-year grade in general zoology. The Philadelphia high schools being more of a unit than either of the other groups are considered with respect to presence and absence of zoology, botany, physics and chemistry, while in those high schools outside of Philadelphia and the private schools the presence or absence of zoology is alone presented. In Table III., the mid-year grades of freshmen in zoology, in Latin and in mathematics are compared. The results of Tables I. and II. are presented graphically in Fig. 1 and Fig. 2.

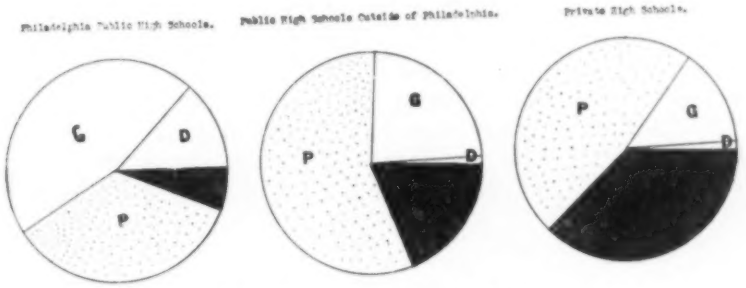

FIG. 1. Freshman zoology-marks for four years.

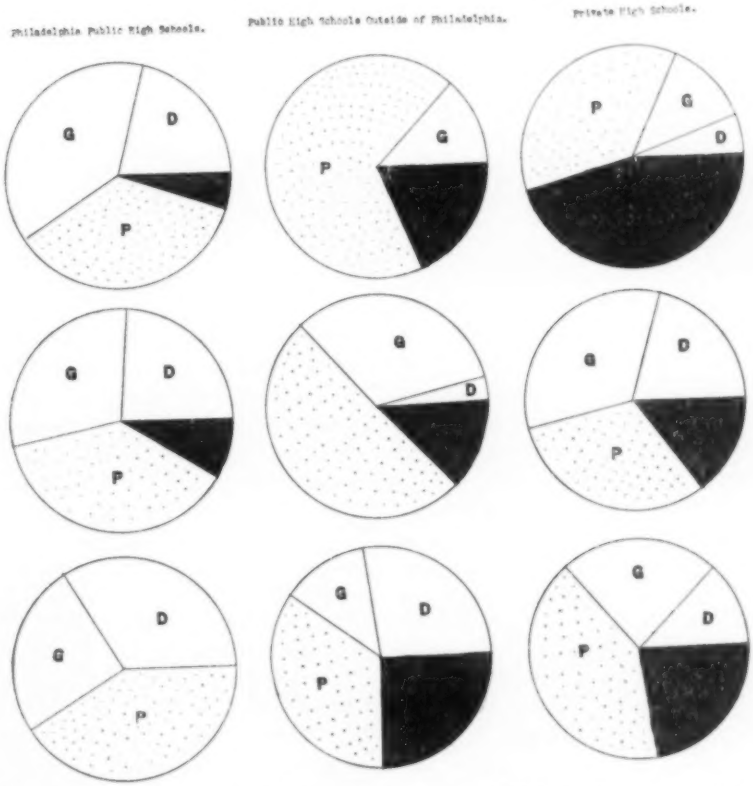

FIG. 2. Upper: mid-year marks in freshman zoology. Middle: mid-year marks in freshman Latin. Lower: mid-year marks in freshman mathematics.

In drawing conclusions from these data it is well to remember that in many cases the numbers are small and the probable error therefore very large.

The results of an inspection of these tables are as follows: (1) Table I., poor showing made by students of private schools is most apparent; (2) Table II., students from the Philadelphia high schools who have had a course in zoology make the best showing; (3) the study of botany in high school is an advantage; (4) chemistry and physics are no advantage to a student as far as grades are concerned in this course of college zoology; (5) in the high schools outside of Philadelphia in the long run it makes no difference whether they have had zoology or not; (6) in the private schools zoology is rarely taught. Because the bad showing made by private schools may be due to the fact that they do not teach zoology the mid-year grades of the same class were investigated for two other subjects, subjects that are supposed to be well taught in private schools, viz.: Latin and mathematics. The distribution of the mathematics grades is more like that for zoology. (7) Students from the private schools, however, do as well in Latin as those from the Philadelphia high schools.

To return to the recommendation of the American Society of Zoologists made in 1904, students intending to study zoology in college were to be advised not to study zoology in school but devote their time to physics and chemistry. The supposition should be that chemistry for example should be an advantage in their college zoology course. Our figures show it does not lead to better marks.

If we recommend this ought we not arrange our course so that a preliminary knowledge of physics and chemistry would be a greater advantage to the student than a preliminary knowledge of zoology?

Indeed the author does not know if these conclusions from the University of Pennsylvania will generally hold. It would be of great interest if similar investigations could be undertaken at some of the older private universities and at some of the state universities. It is only by such an investigation that any real conclusions can be formed. We can not form opinions by recalling to our mind a few individual cases no matter how vividly they may stand out. If we make recommendations designed to apply to the "general run" of students, these must be based on an examination of the "general run."

The author does not wish to let the bad showing of the private school pass without a remark. From the public school we have entering the university a number of selected men, the survival of the fittest both in intellectual ability and in a very much less degree in the pocketbook of the parent. In the private school on the other hand there is little selection. The parent in almost every case can send his child to college. Therefore these schools have in many cases become cramming machines. In the records many students reported having been to a public high school before they entered a private school. In most cases these were very poor students, so that one can not help but infer that they were eliminated from the public school and crammed in the private. In that way the intellectual product of the private school has become much lowered.

Again another test of this side of the private school may be made by an examination of the grades in Latin. These poor students very rarely take Latin. The result then is that the private schools make as good a showing as the city public schools.

One can not fail to conclude from these figures even allowing for the probable error that it is more advantageous for a student in the general zoology course at the University of Pennsylvania to have had some biology in school and as the course is at present carried on there is no incentive for a student to come prepared in both physics and chemistry as recommended by the American Society of Zoologists. The author sincerely hopes that similar statistics can be gathered from other institutions so that we can see how generally this state of affairs exists, and, if necessary, what remedy can be worked out to eliminate it.

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